

# REGULATIONS

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# REGLAMENTO 2016/425

EU Regulation 2016/425 of the European Parliament and of the Council of 09 March 2016 on Personal Protective Equipment and repealing Council Directive 89/686/EEC. Rule emanating from the bodies of the European Union directly applicable in the Member States, without the need for transposition. Published on March 31, 2016 in the OJEU enters into force on April 21, 2018. From April 21, 2019 distributors will be able to place on the market PPE compliant with the new Regulation 2016/425. **Gloves that JUBA or its customers have in stock with old standards can be marketed without problems until April 2023.**

## Main changes to the new EU regulation 2016/425

- It goes from being a Directive to a mandatory Regulation in all EU countries.
- The CE Declaration of Conformity will be named the EU Declaration of Conformity, and the standards to which it refers will be cited with the year of update or revision: EN388: 2016 or ENISO374: 2016.
- CE Certificates will be named as EU Certificates.
- The Prospectus must include a link where you can download the EU Declaration of Conformity.
- The manufacturer agrees to establish traceability on its EPIS.
- An expiration of 5 years is imposed on the EU Type Examination Certificates that will require the recertification of all EPIS.
- EPIS designed to protect against chainsaw portable chainsaw cuts become Category III EPIS.

## Categories of risks with respect to EPIS

**CE CAT.I** Includes the following minimum risks: (superficial mechanical injuries, contact with weakly acting cleaning materials or extensive contact with water, contact with hot surfaces not exceeding 50°C., eye injuries caused by sunlight non extreme atmospheric conditions. Internal production control (Module A) is carried out in accordance with Annex IV.

**CE CAT.II** It includes risks other than those listed in categories I and III. EU type examination (Module B) under Annex V, followed by conformity to the type based on internal production control (Module C) under Annex V.

**CE CAT.III** Exclusively includes risks that might incur very serious consequences, such as death or irreversible damage to health, in relation to the following: (substances and mixtures dangerous to health, atmospheres lacking oxygen, harmful biological agents, ionizing radiation, atmospheres with high temperatures whose effects are comparable to those of an air temperature of at least 100°C, low temperature environments whose effects are comparable to those of an air temperature of -50°C or less, falls from height, electric shocks and live work, drowning, cuts by hand-operated chain saws, high-pressure jets, gunshot or stab wounds, harmful noises).

### EU type examination (Module B) according to Annex V and any of the following options:

- Type conformity based on internal production control plus supervised product control at random intervals (Module C2) according to Annex VII.
- Conformity with the type based on the quality assurance of the production process (Module D) under Annex VIII.

# EN 420:2003+A1:2009 Basic requirements and test methods

## The standard defines general requirements:

- Glove design and construction.
- Resistance of glove materials to water penetration.
- Safety: pH between 3.5 and 9.5 according to EN ISO 4045 / EN 1413, chromium VI content less than 3.0 mg / kg according to EN ISO 17075: 2007 for leather gloves and extractable proteins according to EN 455-3 for natural rubber gloves.
- Cleaning.
- Electrostatic properties.

## The standard defines comfort and effectiveness:

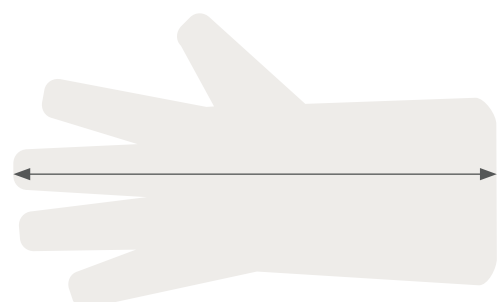
- Sizes.
- Dexterity.
- Transmission and absorption of water vapor.

SIZES	DIMENSIONS OF THE HAND		GLOVE DIMENSION MINIMUM LENGTH
	CIRCUMFERENCE	LENGTH	
6	152	160	220
7	178	171	230
8	203	182	240
9	229	192	250
10	254	204	260
11	279	215	270

## Skill:

- Nested table.

PROTECTION LEVEL	HAND SKILL
	DIAMETER OF THE SMALLEST ROD THAT MEETS THE TEST CONDITIONS (MM)
1	11,0
2	9,5
3	8,0
4	6,5
5	5,0



# EN ISO 21420:2020

It includes mittens and kitchen mitts and potholders in the object and field of application.

## Harmless

In addition to the above requirements, a series of recommendations regarding the substances in the gloves is introduced:

- Any metal component which may come into prolonged contact with the skin (e.g. tacks, fittings) must have a nickel release of less than 0.5 µg/cm<sup>2</sup> per week.
- Azo dyes that release carcinogenic amines should not be detectable.
- Dimethylformamide (DMF) in gloves containing PUs should not exceed 1000 mg/kg.
- Polycyclic aromatic hydrocarbons (PAHs) shall not exceed 1 mg/kg for rubber or plastic materials intended to come into direct contact with the skin.

The performance levels for gloves that can be washed will be the lowest obtained after the cleaning process.

In multi-layer gloves, the integrity of the layers in the finger area must be ensured.

The gloves should allow the transmission of water vapour whenever possible.

- Leather gloves – Transmission of water vapour > 5 mg/(cm<sup>2</sup>·h).
- Textile gloves – Water vapour resistance ≤ 30 m<sup>2</sup>·Pa/W.



The requirements for electrostatic properties must be checked in accordance with the specific standard for antistatic gloves EN16350. For protective gloves with electrostatic dissipation, each individual measure must comply with the requirement: Vertical Resistance  $RV < 1.0 \times 10^8 \Omega$  (Ohm) and is accompanied by a new logo to be indicated on the gloves.

The manufacturing date or any other means ensuring traceability of the manufacturing series must be indicated. When an obsolescence date has to be entered, it should be done by adding the hourglass pictogram on both the glove and the packaging.

**Hand Sizes:** A new size table is introduced, extending the range from 4 to 13.

SIZES	HAND DIMENSIONS	
	CIRCUMFERENCE	LENGHT
4	101	< 160
5	127	< 160
6	152	160
7	178	171
8	203	182
9	229	192
10	254	204
11	279	215
12	304	> 215
13	329	> 215

# EN 388:2016 Protective gloves against mechanical risks

EN 388:2016 The EN388: 2003 standard is renamed EN388: 2016, the year of its revision. The reason for the modification is given by the discrepancies in the results between laboratories in the knife cut test, COUP TEST. Materials with high levels of cut produce a dulling effect on the circular blades, which undermines the result.



ABCDEF

The new regulation was published in November 2016 and the previous one is from the year 2003. During these 13 years, there has been a great innovation in the materials for the manufacture of cutting gloves, they have forced to introduce changes in the tests to be able to measure with more rigorous levels of protection. If you want to know more about the main changes in this regulation, you can consult it through our web site [www.jubappe.com](http://www.jubappe.com)

EN 388:2016 PERFORMANCE LEVELS	1	2	3	4	5
6.1 Abrasion resistance (Cycles)	100	500	2000	8000	-
6.2 Blade cut resistance (Index)	1,2	2,5	5	10	20
6.4 Tear resistance (Newtons)	10	25	50	75	-
6.5 Puncture resistance (Newtons)	20	60	100	150	-

EN ISO 13997:1999 PERFORMANCE LEVELS	A	B	C	D	E	F
6.3 TDM: Cut resistance (Newtons)	2	5	10	15	22	30

EN 388:2016



ABCDEF

EN 388:2016

+A1:2018



ABCDEF

- A** – Abrasion resistance (X, 0, 1, 2, 3, 4)
- B** – Blade Cut Resistance (X, 0, 1, 2, 3, 4, 5)
- C** – Tear resistance (X, 0, 1, 2, 3, 4)
- D** – Puncture resistance (X, 0, 1, 2, 3, 4)
- E** – Cutting by sharp objects ISO 13997 (A, B, C, D, E, F)
- F** – Impact test complies / does not comply (It is optional. If it complies, put P)

**+A1:2018** – Modifie le tissu de coton utilisé dans le test de coupe (deuxième chiffre)

# EN 511:2006 Protective gloves against the cold

EN 511:2006



ABC

## Levels vs temperature of glove use

- If the convective cold is level 0 – This glove can be used up to a temperature of 0°C
- If the convective cold is level 1 – This glove can be used up to a temperature of -10°C
- If the convective cold is level 2 – This glove can be used up to a temperature -20°C
- If the convective cold is level 3 – This glove can be used up to a temperature of -30°C
- If the convective cold is level 4 – This glove can be used up to a temperature of -40°C

Gloves on both hands must meet the requirements below:

PERFORMANCE LEVEL		1	2	3	4
A Convective cold resistance*	ITR thermal insulation in m <sup>2</sup> C/W	0,10 ITR 0,15	0,15 ITR 0,22	0,22 ITR 0,30	0,30 ITR
B Contact cold resistance	Thermal resistance R in m <sup>2</sup> C/W	0,025 R 0,050	0,050 R 0,100	0,100 R 0,150	0,150 R
C Water impermeability	Waterproof for at least 5 minutes	Pass			

# EN ISO 374:2016 Chemical protection gloves

EN ISO 374-1:2016



XXXXXX

The EN374: 2003 standard is renamed ENISO374: 2016. The purpose of this standard is to classify gloves according to their behavior when exposed to chemical substances.

They are divided into the following parts:

**EN ISO 374-1:2016** – Terminology and performance requirements for chemical risks.

**EN 374-2:2014** – Determination of resistance to penetration.

EN ISO 374-5:2016



**EN 16523-1:2015** – Permeation by liquid chemicals under continuous contact conditions.

**EN ISO 374-4:2019** – Determination of resistance to chemical degradation.

**EN ISO 374-5:2016** – Terminology and requirements demanded for risks of microorganisms.

## Gloves classification according to EN ISO 374-1:2016

Gloves are divided into three types:

EN ISO 374-1:2016



UVWXYZ

### TYPE A

Step time  $\geq$  30 min for at least 6 products.

EN ISO 374-1:2016



XYZ

### TYPE B

Step time  $\geq$  30 min for at least 3 products.

EN ISO 374-1:2016



### TYPE C

Step time  $\geq$  10 min for at least 1 products.

LETTER	CHEMICAL SUBSTANCE	N° CAS	CLASS
A	Methanol	67-56-1	Primary alcohol
B	Acetone	67-64-1	Cetone
C	Acetonitrile	75-05-8	Nitrile compound
D	Dichloromethane	75-09-2	Chlorine hydrocarbon
E	Carbon disulfide	75-15-0	Sulphate organic compound
F	Toluene	108-88-3	Aromatic hydrocarbon
G	Diethylamine	109-89-7	Amine
H	Tetrahydrofuran	109-99-9	Heterocyclic ether
I	Ethyl acetate	141-78-6	Ester
J	n-heptane	142-85-5	Saturated hydrocarbon
K	Sodium Hydroxide 40%	1310-732	Inorganic alkaline
L	Sulphuric acid 96%	7664-93-9	Inorganic, oxidising mineral acid
M	Nitric acid 65%	7697-37-2	Inorganic, oxidising mineral acid
N	Acetic acid 99%	64-19-7	Organic acid
O	Ammonia Hydroxide 25%	1332-21-6	Organic Alkaline
P	Hydrogen peroxide 30%	7722-84-1	Peroxide
S	Hydrofluoric acid 40%	7664-39-3	Mineral organic acid
T	Formaldehyde 37%	50-00-0	Aldehyde

## Levels of resistance to permeability

AVERAGE PENETRATION TIME	PERFORMANCE LEVELS	AVERAGE PENETRATION TIME	PERFORMANCE LEVELS
> 10	Class 1	> 120	Class 4
> 30	Class 2	> 240	Class 5
> 60	Class 3	> 480	Class 6

## Gloves classification according to EN374-2:2014

It is the advance of chemical products through the material, seams of the glove at a non-molecular level. Air leak test: the glove is inflated with air and immersed in water. The appearance of air bubbles is controlled within 30'. Water leak test: the glove is filled with water and the appearance of water droplets is controlled. If these tests are positive, the pictogram will be put on.

## Gloves classification according to EN374-4: 2013

Detriment to some of the glove's properties due to contact with a chemical. Eg: discoloration, hardening, softening, etc. Permeation test EN 16523-1. It is the advancement of chemicals at the molecular level. The resistance of the glove material to permeation by a chemical is determined by measuring the time it passes through the material.

## Modification of the ENISO374-5: 2016 standard

When the glove passes the test described for virus protection, the word "virus" will appear under the pictogram. If nothing appeared, protection would only be assured against bacteria.

# EN 381-7:1999 Protective clothing for users of hand-held chainsaws

EN 381-7:1999



CLASS X

The minimum levels required for the EN388 standard are as follows:

Abrasion resistance **2**

Cut resistance **1**

Tear resistance **2**

Puncture resistance **2**

Protection against chainsaw cutting should be evaluated with the following chainsaw speeds.

CLASS	SPEED
<b>0</b>	16 m/s
<b>1</b>	20 m/s
<b>2</b>	24 m/s
<b>3</b>	28 m/s

# EN ISO 11393-4:2019 Protective clothing for users of hand-held chainsaws

EN ISO 11393-4:2019 The minimum levels required for the EN388 standard are as follows:

CLASS/DESIGN/TYPE	Abrasion resistance <b>2</b>
	Cut resistance <b>1</b>
	Tear resistance <b>2</b>
	Puncture resistance <b>2</b>

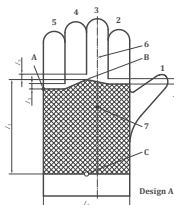
CLASS	SPEEDS
<b>0</b>	16 m/s
<b>1</b>	20 m/s
<b>2</b>	24 m/s
<b>3</b>	28 m/s

Protection against chainsaw cutting should be evaluated with the following chainsaw speeds.

## Classification by type

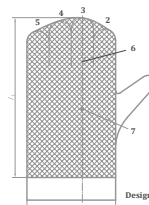
**TYPE 1** Protection against chainsaw cutting in both right and left hands.

**TYPE 2** Chain cut protection only on left hand. The right hand has no cut protection.



### Design A

Only applicable for gloves with cut protection in the metacarpal area, but not on fingers or thumb



### Design B

Applicable to gloves and 3-finger mitts incorporating, in addition to design A protection, the back of the fingers (except thumb).

## Main changes with previous standard:

Requirements that in EN381-7 were optional, cleaning, dexterity and water vapour permeation and absorption, become mandatory.

It becomes mandatory to measure dexterity by means of a grip test essay on a bar with a pressure sensor.


Water vapour permeation is mandatory for coated gloves.


In the cutting test, the changes are: Pre-treatment – cleaning according to the Manufacturer's instructions. The number of cuts significantly increases the number of cuts and the areas. All of them are mandatory.


TYPE	DESIGN	
	A	B
1	Position 1: two in left hand Position 2: two in left hand Position 3: one in right hand Position 4: two in right hand	Posición 5: two in left hand Position 6: two in left hand Position 7: one in right hand Position 8: one in right hand Position 9: one in right hand Position 10: one in lefthand
2	Posición 1: two in left hand Position 2: two in left hand	Posición 1: two in left hand Position 2: two in left hand Position 10: one in right hand

# ISO 18889:2019 Protective gloves for pesticide operators

Minimum requirements for workers in contact with pesticides

- ISO 18889:2019**  G1
- Chemical protection all over the hand.
  - Relatively low potential risk.
  - Handling of diluted pesticides.
  - No mechanical hazards.
  - Disposable: minimum length 240 mm.

- ISO 18889:2019**  G2
- Chemical protection all over the hand. Increased potential risk.
  - More protection than the G1.
  - Handling of concentrated or diluted pesticides.
  - Minimum length 290 mm.
  - Minimum mechanical protection: abrasion – level 2, cutting – level 1 or letter A and perforation – level 1.

- ISO 18889:2019**  GR
- Partial hand protection (fingers and palm):
  - Minimum mechanical protection for handling tasks: abrasion–level 2, cutting – level 1 or A, tearing – level 1 and perforation – level 1.
  - For users in contact with partially dried or dried pesticide residues existing on the plant after applying the pesticide.
  - They cannot be used to replace the G1 or G2 that protect the whole hand.
  - A breathable material on the back of the glove enhances comfort.

SUBCLAUSE	ACTION DESIGN REQUIREMENTS	STANDARD; CLAUSE	REQUIREMENTS		
			G1	G2	GR
4.1	General requirements	ISO 21420	Compliant	Compliant	Compliant
4.2.1	Penetration Test	EN 374-2:2014, 7.2 y 7.3	Pass	Pass	
4.2.2.1	Resistance to permeation	ISO 374-1	Type C	Type B	Level 2 with chemical K
4.2.2.2	Resistance to permeation	ISO 19918	10 g/cm <sup>2</sup>	1 g/cm <sup>2</sup>	1 g/cm <sup>2</sup>
4.2.3.1	Glove length		Compliant	Compliant	
4.2.3.2	Coated area				Compliant
4.2.4	Mechanical requirements	ISO 23388:2018, 6.1		Level 2	Level 2
		ISO 23388:2018, 6.2		Level 1	Level 1
		ISO 23388:2018, 6.3		o	o
		ISO 23388:2018, 6.4		Level A	Level A
		ISO 23388:2018, 6.5		Level 1	Level 1

# EN 407:2004 Protective gloves against thermal risks

EN 407:2004



A B C D E F

## A - Flame behaviour

The material should comply with the requirements in the table. In addition, the material should not drip or melt. The seams should not open up after 15 seconds ignition time

SERVICE PROVISION LEVEL	POST-INFLAMMATION TIME	POST-INCANDESCENCE TIM
1	20	No requirement
2	10	120
3	3	25
4	2	5

## B - Heat per contact

The material should comply with:

SERVICE PROVISION LEVEL	CONTACT TEMPERATURE	THRESHOLD TIM (s)
1	100	15
2	250	15
3	350	15
4	500	15

## C - Convective heat

The material should comply with:

SERVICE PROVISION LEVEL	HTI HEAT TRANSFER INDEX
1	4
2	7
3	10
4	18

## D - Radiating heat

The material should comply with:

SERVICE PROVISION LEVEL	HEAT TRANSFER INDEX $T_3$
1	7
2	20
3	50
4	95

## E - Small splashes

The number of droplets necessary to produce a 40°C rise in temperature should meet requirements in the table:

SERVICE PROVISION LEVEL	NUMBER OF DROPLETS
1	10
2	15
3	25
4	35

## F - Large splashes

The PVC film that simulates the skin will not be smoothed or its surface roughness changed in any other way, with any of the quantities of iron used:

SERVICE PROVISION LEVEL	MOLTEN IRON (G)
1	30
2	60
3	120
4	200

# EN 407:2020 Protective gloves against thermal risks

EN 407:2020



A B C D E F

Pictogram for gloves where flame behavior is not tested

EN 407:2020



A B C D E F

Pictogram for gloves where flame behavior has been tested

Ratified by the Spanish Standardisation Association in June 2020.

## Main changes:

- Extension of the scope of the standard to domestic use: oven mitts/gloves.
- Gloves that reach a level 3 or 4 of any thermal property must reach at least a level 3 in flame propagation. Otherwise, the maximum level that may be reached in the relevant thermal property shall be level 2.
- Propagation limited to flame: prohibition of hole formation. Reduction of maximum post-combustion time for level 1. Change in ignition timing.
- Heat by contact. Obligation to test any material coming in contact with heat.
- Tear resistance. This trial is included.
- Convective heat. The test is performed without reinforcement.
- New pictogram, for gloves without flame protection.
- A minimum length is introduced when resistance against small molten metal splashes is present.
- **After heat resistance tests, the samples must not suffer signs of melting or holes.**

## MINIMUM LENGTH OF THE TESTED GLOVES FOR E OR F

SIZE	LENGTH
5	290
6	300
7	310
8	320
9	330
10	340
11	350
12	360
13	370

## A - Flame Behaviour

**Changes in method and table.** To perform the test, the ignition time now goes from 15 to 10" and the post-ignition time for level 1 goes from 20 to 15".

LEVEL OF PREFORMANCE	POST-INFLAMMATION TIME	POST IGNITION TIME
1	15	Not required
2	10	120
3	3	25
4	2	5

## B - Heat by contact

**Changes in the test method.** In EN407:2004 only the palm is tested, whereas with EN407:2020 any other point that may come into contact is tested.

LEVEL OF PREFORMANCE	CONTACT TEMPERATURE	THRESHOLD TIME (s)
1	100	15
2	250	15
3	350	15
4	500	15

## C - Convective heat

**Changes in the test method.** From EN373 to ENISO9185:2007

LEVEL OF PREFORMANCE	HTI HEAT TRANSFER RATE
1	4
2	7
3	10
4	18

## D - Radiant heat

There are no modifications. Internal layers must not show signs of melting or show holes.

LEVEL OF PREFORMANCE	HEAT TRANSFER RATE $T_3$
1	7
2	20
3	50
4	95

## E - Small splashes

There are no modifications. Internal and external layers may not be melted or pierced.

LEVEL OF PREFORMANCE	NUMBER OF DROPS
1	10
2	15
3	25
4	35

## F - Large splashes

Changes in the test method.

LEVEL OF PREFORMANCE	CAST IRON (G)
1	30
2	60
3	120
4	200

# EN 659:2003+A1:2008+AC:2009 Protective gloves for firefighters

EN 659:2003 Minimum levels are required for standards EN388 and EN407 and minimum lengths.

+A1:2008



	MINIMUM REQUIREMENTS			MINIMUM LENGTH	
				SIZE	LENGTH
Abrasion resistance	Minimum 2000 cycles (Level 3)	Complies			
Cut resistance	Minimum 2.5 (Level 2)	Complies		<b>6</b>	260 mm
Tear resistance	Minimum 50 N (Level 3)	Complies		<b>7</b>	270 mm
Puncture resistance	Minimum 100 N (Level 3)	Complies		<b>8</b>	280 mm
Flame resistance	t Post-combustion 2s t Post-glow 5s (Level 4) The material does not leak The seams do not open	Complies		<b>9</b>	290 mm
				<b>10</b>	305 mm
				<b>11</b>	315 mm
Convective heat resistance	HTI24 13 s (Level 3)	Complies			
Radiant heat resistance	Heat irradiation time > 22 s	Complies			
Contact heat resistance	At 250° C 10 s	Complies			
Lining material heat resistance	At minimum 180°C: Does not melt Does not drip or burn	Complies			
Shrinkage due to heat	At 180° C < 5%	Complies			
Dexterity	Minimum Level 1 (11 mm rod)	Complies			
Resistance to breakage of seams	> 350 N	Complies			
Glove removal time	< 3 s	Complies			
Water penetration resistance (optional)	Levels 1 to 4 depending on the time it takes for the water to pass through the glove	Complies			
Chemical penetration resistance - (H <sub>2</sub> SO <sub>4</sub> ) = 30% Sulfuric acid - (NaOH) = 40% Sodium hydroxide - (HCl) = 36% Hydrochloric acid - Heptane	Does not penetrate Does not penetrate Does not penetrate Does not penetrate	Complies			

# EN 12477:2001+A1:2005 Protective gloves for welders

Requirements and test methods for welder's gloves. It classifies them into two types.

- **Type A** general welder gloves.
- **Type B** tact welder gloves. High dexterity TIG welding case.

## Warnings

At the moment there is no test method to determine the penetration of UV radiation through the materials from which the glove is made.

When gloves are intended for arc welding: These gloves do not provide protection against electric shock caused by faulty equipment or live work, and electrical resistance is reduced if the gloves are damp, dirty, or sweat-wet, which could increase the risk.

PROPERTY	MINIMUM REQUIREMENTS		
	STANDARD NUMBER EN	TYPE A	TYPE B
Abrasion resistance	EN 388	2 (500 cycles)	1 (100 cycles)
Blade cut resistance	EN 388	1 (index 1,2)	1 (index 1,2)
Tear resistance	EN 388	2 (25 N)	1 (10 N)
Puncture resistance	EN 388	2 (60 N)	1 (20 N)
Fire behavior	EN 407	3	2
Contact heat resistance	EN 407	1 (contact temperature 100°C)	1 (contact temperature 100°C)
Convective heat resistance	EN 407	2 (HTI 7)	-
Resistance to small molten metal splashes	EN 407	3 (25 drops)	2 (15 drops)
Dexterity	prEN420:1998	1 (diameter less than 11 mm)	4 (diameter less than 6,5 mm)
Vertical Resistance		> 10 <sup>5</sup> Ω	> 10 <sup>5</sup> Ω

## MINIMUM GLOVE LENGTH

SIZE	6	7	8	9	10	11
LENGTH	300 mm	310 mm	320 mm	330 mm	340 mm	350 mm

# EN 16350:2014 Protection against electrostatic properties

**EN 16350:2014** The sample must be conditioned at least 48 hours before the test and must be tested at an air temperature 23 +/- 1°C and at a relative humidity of 25 +/- 5%.



For protective gloves with electrostatic dissipation, each individual measurement must meet the requirement:  
Vertical resistance,  $R_v < 1,0 \times 10^8 \Omega$ .

## Warnings and additional information

- Test results and test conditions in relation to the vertical resistance test.
- The person wearing ESD protective gloves will be properly grounded, such as wearing appropriate footwear.
- Protective gloves with electrostatic dissipation must not be removed from their packaging, opened, or put on or removed, when in a flammable or explosive atmosphere or when handling flammable or explosive substances.
- The electrostatic properties of the protective gloves may be affected by aging, contamination or damage, and may not be sufficient for flammable oxygen-enriched atmospheres where additional evaluations are necessary.

# EN 609:2003 Gloves for electrical hazards

Insulating gloves from class 00 (500V) to class 4 (36000V).

Personal protective equipment EPI CAT III.

AZC category (resistant to Acids, ozone and very low temperatures).

RC category (resistant to Acids, oil, ozone and very low temperatures)

CLASS	CATEGORY	MAXIMUM VOLTAGE (V)		WEIGHT (gr)
		AC	DC	
00	AZC	500	750	90
0	RC	1000	1500	200
1	RC	7500	11250	270
2	RC	17000	25500	450
3	RC	26500	39750	560
4	AZC	36000	54000	800

# EN 13594:2015 Protective gloves for motorcycle riders

Application standard for motorcycle gloves in driving activities.

**EN 13594:2015** EN 13594:2015



## Level 1

For gloves designed to provide protection with few ergonomic restrictions associated with their use.

**EN 13594:2015**



## Level 2

For gloves providing greater protection than level 1. It may lead to greater weight restriction and difficulty in movement.

## REQUIREMENTS

	Level 1	Level 2
Minimum cuff length	15 mm	50 mm
Fastening	25 N	50 N
Tear resistance: palm and palm side of fingers	25 N	35 N
Tear resistance: wrist, back and back of fingers	18 N	30 N
Tear resistance: forks	18 N	25 N
Seam strength: main seams	6 N/mm	10 N/mm
Seam strength: forks	4 N/mm	7 N/mm
Minimum cut resistance index: palm side	1,2	1,8
Minimum cut resistance index - back side	Not required	1,2
Minimum requirements for impact abrasion resistance: individual abrasion time	3,0 <sub>s</sub>	6,0 <sub>s</sub>
Minimum requirements for impact abrasion resistance: average abrasion time	4,0 <sub>s</sub>	8,0 <sub>s</sub>
Minimum requirements for impact attenuation: individual result	optional 9,0 kN	obligatory 5,0 kN
Minimum requirements for impact attenuation: mean force transmitted	optional 7,0 kN	obligatory 4,0 kN



# EN ISO 11611:2015 Clothing for welders

EN ISO 11611:2015 The user must adjust the garment through its closure systems, whether they are buttons, Velcro, slips or a mixture of them. You will never work with the garment unbuttoned.



CLASS X

Adapted additional PPEs must be worn to ensure maximum protection (face protection, helmet, gloves, footwear, ...). Please read the instructions for use and the safety information of the additional PPEs before use.

TYPE OF WELDER CLOTHING	SELECTION CRITERIA RELATED TO THE PROCESS:	SELECTION CRITERIA RELATED TO ENVIROMENTAL CONDITIONS:
Class 1	Manual welding techniques with slight spatter and droplet formation, for example: Oxygen gas welding / TIG welding / MIG welding / Micro plasma welding / Strong welding / Spot welding / MMA welding (with rutile coated electrode)	Machine operation, for example of: Oxygen cutting machines / Plasma cutting machines / Resistance welding machines / Thermal spraying machine / Welding bench
Class 2	Manual welding techniques with slight spatter and droplet formation, for example: Oxygen gas welding / TIG welding / MIG welding / Micro plasma welding / Strong welding / Spot welding / MMA welding (with rutile coated electrode)	Machine operation, for example from: In confined spaces / Welding / Cutting under roof or in comparable forced positions